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Annual Review of the South African SBT Fishery for the Extended Scientific Committee August 2013

1. Introduction

The South African longline fishery started in the early 1960s. Southern bluefin tuna was one of the most common species caught in South African waters with more than 1 500 t estimated to be landed from 1961-1967. The fishery failed to develop as fishing interests turned to other more lucrative fish stocks such as hake and rock lobster. Subsequently, tuna longline fishing in the 1970s to 2002, in South African waters was dominated by foreign vessels from Japan and Chinese-Taipei through the issuing of bi-lateral agreements. These agreements were terminated in 2002, with the intention that marine resources within South Africa's EEZ should only be exploited by South Africans. Renewed interest by South Africans to conduct longline fishing for tuna and swordfish was developed in 1997 with the establishment of an experimental longline fishery. The South African longline fishery was formalized into a commercial fishery in 2005 and 18 swordfish longline rights and 26 tuna longline rights were allocated. A further allocation was held in 2011 with a further 3 swordfish longline rights and 3 tuna longline rights were allocated. The total effort in the South African longline fishery is therefore restricted to a maximum of 21 swordfish longline vessels and 29 tuna longline vessels.

Currently southern bluefin tuna is only caught in South Africa by means of swordfish and tuna longline vessels. The swordfish longline vessels are domestic vessels that mainly target swordfish, yellowfin and bigeye within South Africa's EEZ and catch southern bluefin tuna as by-catch. These vessels set after dusk, using shallow sets, squid bait and light sticks. The longline system used is based on the American system, i.e. using monofilament mainline. The tuna longline vessels target yellowfin and bigeye tuna. South Africa is currently in the process of developing this relatively 'new' sector of its fishery and notes that no suitable domestic vessels exists for this fishery. Furthermore, South Africans are not suitably skilled to target tuna using longline. Consequently, there is a reliance on chartering of foreign vessels as a means to source suitable vessels for reflagging and to provide an environment for the transfer of skills to South Africans.

The large pelagic fishery in 2012 consisted of 20 domestic swordfish longline vessels and 11 chartered tuna longline vessels from Japan. The fishing season was not a typical season as the catches of the main target species, namely swordfish and yellowfin, were extremely low. In contrast, extremely high catch rates of southern bluefin were experienced during July with large numbers also caught off the east coast of South Africa which is not considered to be an historical fishing ground for southern bluefin. Due to the large amount of southern bluefin caught the fishery for this species was closed on the 17 July 2012 for the swordfish longline vessels and the 1 August 2012 for the tuna longline vessels.

2. Catch and Effort

As stated in the introduction the reintroduced South African longline fishery is fairly new. During the experimental phase fishing effort rose sharply from around 47 thousand hooks in 1998 to 3.8 million hooks in 2004 (Figure 1). Since the commercialization of the fishery the fishing effort has fluctuated between 4 to 5 million hooks with the exception of 2006 where fishing effort was reduced to 1 million hooks due to a Departmental policy which did not allow any foreign fishing vessels to participate in the fishery in that year (Figure 1).

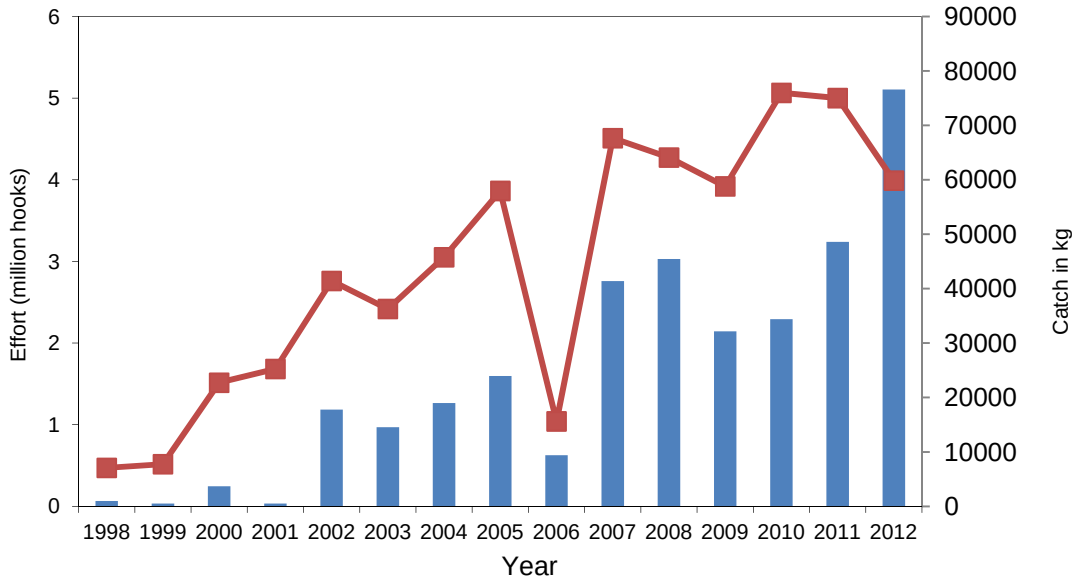

Fig. 1. South African southern bluefin catch (bar) and effort (line) data (1998-2012)

South Africa's total annual southern bluefin catch has fluctuated between 9 – 76 t whole weight since 2005. The lowest figure was recorded in 2006 and the highest catch was recorded in 2012. The bulk of the catch was made by the domestic longline vessels since 2009 (Figure 2). A conversion factor of 1.15 is used to raise dressed weight to whole weight.

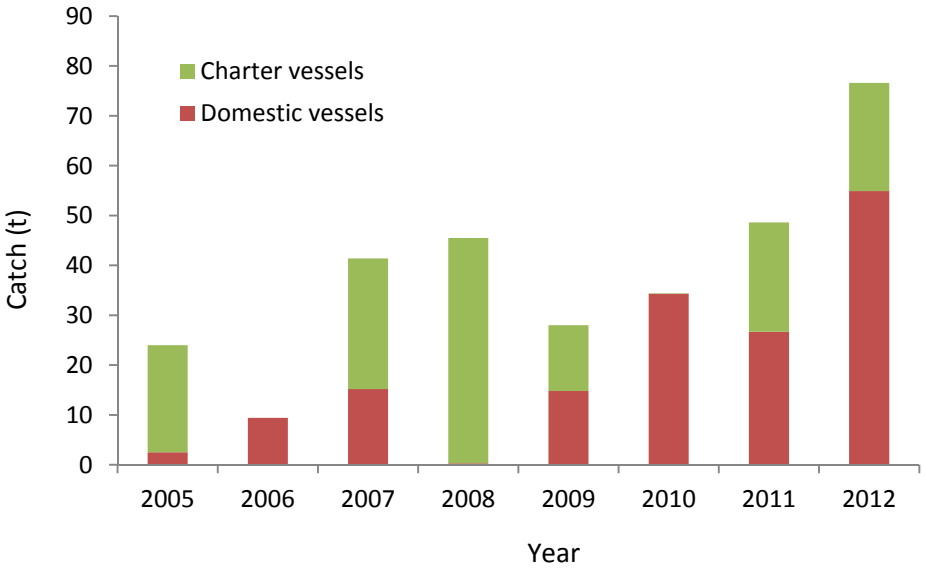

Fig. 2. Catches of SBT in tonnes by domestic and charter vessels between 2005 and 2012.

The longline fishery mainly operates within South Africa's EEZ from March to October. Southern Bluefin have been reported to be caught between April and October, but the main catches are made in June and July (Figure 3). The main fishing area for southern bluefin lies along the southern part of South Africa's EEZ, which corresponds to CCSBT Statistical Area 9. However, since 2009 increasing catches of southern bluefin have been made along the east coast of South Africa, i.e. east of 30°E and which corresponds to CCSBT Statistical Area 14.

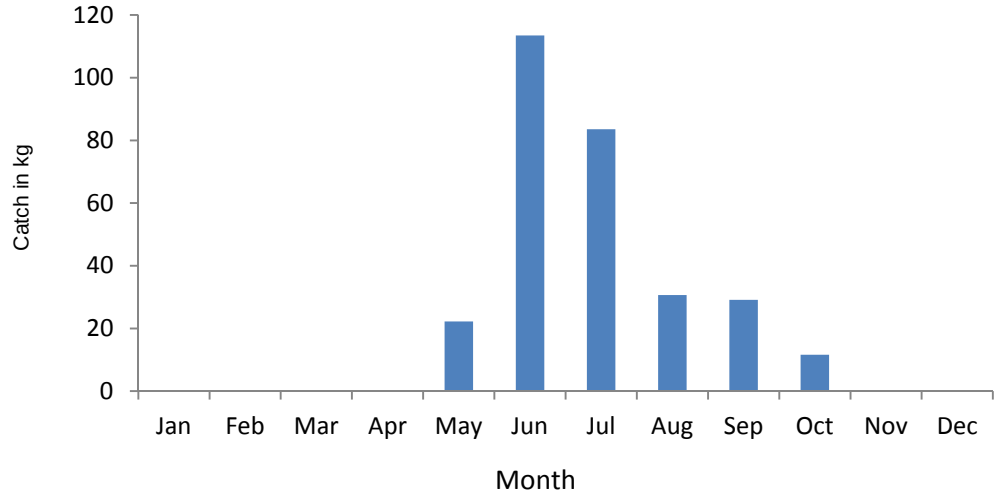

Fig 3. SBT catches between 2006 and 2012 accumulated by month.

3. Nominal CPUE

Analysis of nominal southern bluefin CPUE for the South African longline fishery is not meaningful as the main target species are swordfish, bigeye and yellowfin, and southern bluefin is considered to be a by-catch. Furthermore, due to South Africa's country allocation being reached prematurely in a number of seasons (2007, 2008, 2011, and 2012) the southern bluefin fishery was closed early in these years. This meant that vessels that caught southern bluefin after the closure of the fishery had to discard the fish, which was then not recorded. Also there are different management regimes that have been imposed on the domestic fleet and the charter fleet. The domestic fleet is allowed to fish a proportion of the South African southern bluefin quota on an Olympic system, whereas the charter vessels were given an allocation at the start of the season. In more recent years the initial quotas given to charter vessels were amended later in the season if other right holders failed to activate their fishing rights. Despite these difficulties, nominal CPUE has steadily increased since 1998, with the highest reported nominal CPUE observed in 2012 of 19.2 kg.1000 hooks^{-1} (Figure 4).

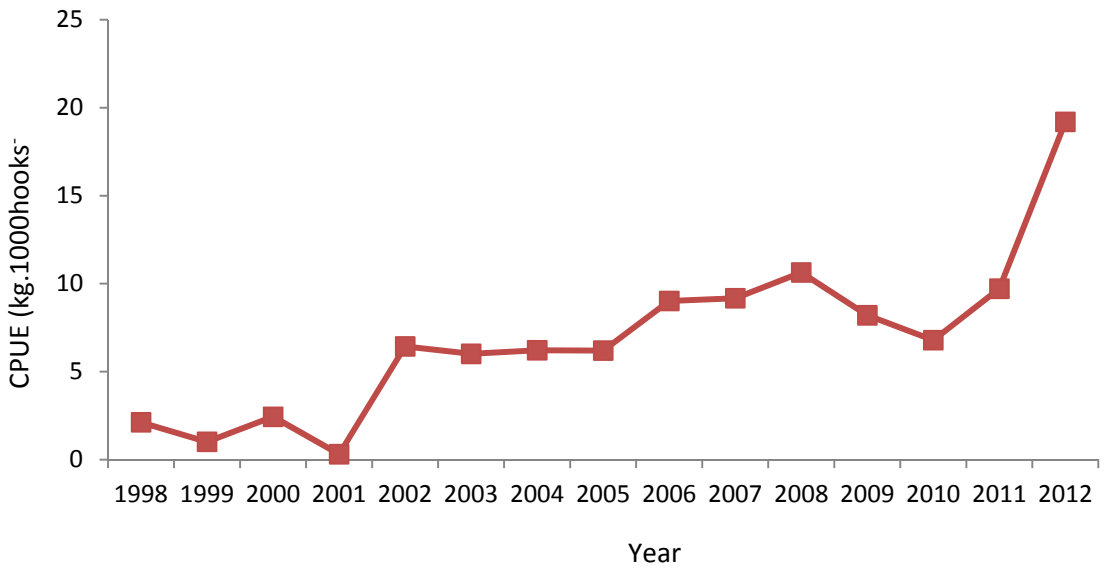

Fig. 4. Nominal CPUE of SBT caught in the South African fishery between 1998-2012.

4. Size Composition

2390 southern bluefin have been measured on board large pelagic longline vessels by scientific observers between 2002 and 2012. There has been no discernible trend in the annual average size of fish between 2002 and 2012 (Figure 5). The annual average size of southern bluefin caught in the South African fishery has generally fluctuated between 140 – 160 cm FL, and no trend was observed. The smallest fish measured 78 cm and the largest fish measured 210 cm. There is also no difference in the size of fish caught by the swordfish longline vessels compared

to the tuna longline vessels.

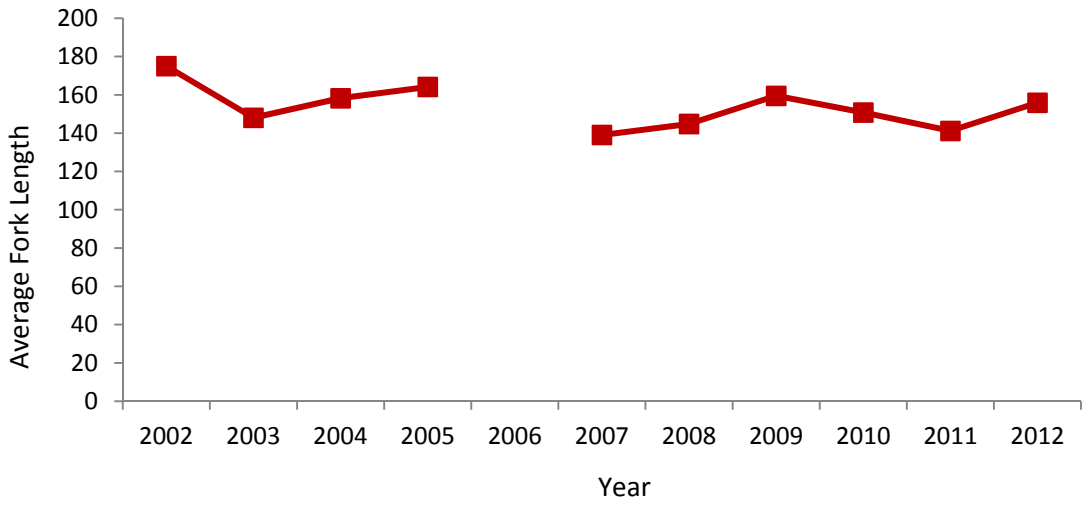

Fig. 5. Average fork length of SBT caught by domestic and charter vessel s combined.

5. Fleet Size and Distribution

Between 2005 and 2012 the annual number of longline vessels reporting catches of southern bluefin ranged from 2 to 20 vessels (Figure 6). The lowest number of vessels reporting catches of southern bluefin was in 2006, due to a Departmental policy that did not allow for any foreign charter vessels to fish in the large pelagic fishery in that year. Since 2006 there have been approximately 30 longline vessels that have actively fished per year. Of these active vessels, 17 vessels reported catches of southern bluefin in 2012. The number of vessels reporting southern bluefin catches in the last two seasons have been similar between domestic and charter vessels (Figure 6).

Fishing areas have remained unchanged since 2005. The charter vessels generally fish along the south coast of South Africa and the domestic vessels generally fish along the south west and east coasts of South Africa.

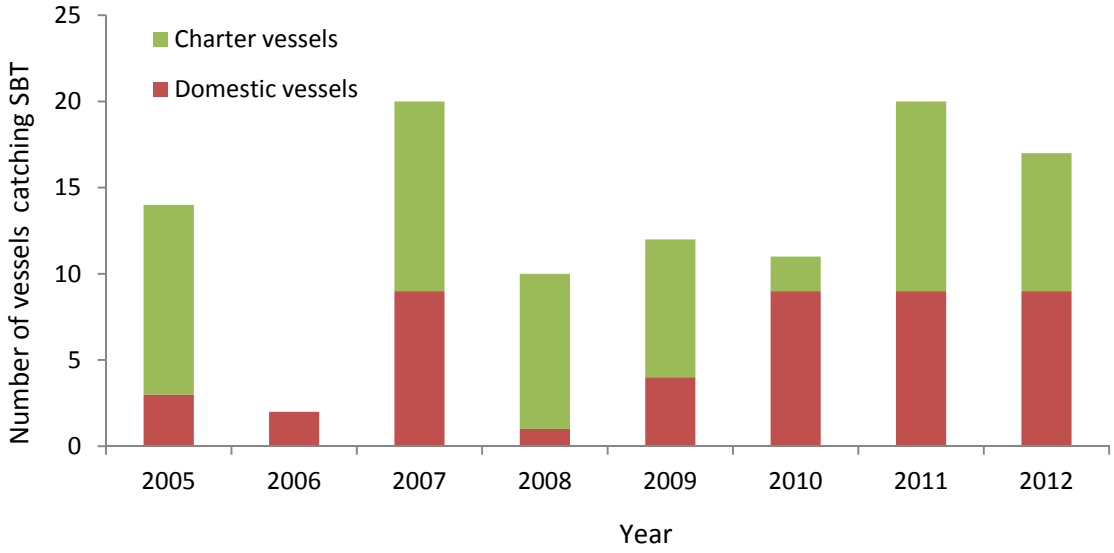

Fig. 6. Total number of domestic and charter vessels catching SBT between 2005 and 2012.

6. Development and Implementation of Scientific Observer Programmes

See details of observer programme in Annexure A.

Annexure A

A. Observer Training

Observer selection screening

Observer selection and screening is largely an administrative process. As observers occupy a "position of trust" background checks, interviews, and verification of references are an important processes in selection. Candidates that pass the screening are selected for training. Although academic qualifications are considered, with attention given to tertiary and post graduate qualifications, individuals are selected on their ability to do the required job without discrimination to culture, race, disability and gender. All labour regulations and other legal requirements in terms of South African law are strictly adhered to.

Recruitment

Recruitment and selection of candidates for observer training takes into account that observers must work safely, respectfully and competently with fishermen and be able to effectively complete their duties onboard without undue interference in the fishing operations. The candidates must be self-motivated and have the ability to work independently without direct supervision under stressful conditions. Prior to being accepted for training candidates should provide proof that they are medically fit.

The observer training can be split into two components;

- In-house training
- Out-sourced specialised training

In-house Training

In-house training follows a curriculum close to the outline of the observer manual. This training usually takes five to ten days to complete. A number of delivery mechanisms used to encompass both the theoretical and practical aspects of the training program. Theoretical and background subjects are usually covered by lectures using visual aids and practical workshop sessions are used to for the practical components such as sampling techniques and data entry.

At the end of the training period candidates are given a final examination on all the

components covered during the training, which consists of a set of questions and practical exercises.

Selective outsourced training

Out-sourced training is divided in into compulsory safety training to meet international standards and additional specialised courses that will assist the observer both in the event of emergencies and the professional execution of their duties. This training is outsourced to accredited organisations that conform to "The International Convention on Standards of Training, Certification and Watch keeping for Seafarers (STCW). Subjects that are outsourced are;

- Personal Survival Techniques (PST)
- Practical First Aid
- Fire Fighting
- GMDSS

All Observers have to attend Personal Survival and Safety Training; *(In accordance with the Merchant Shipping (Training & Certification) Regulation 1999 & the Code of Maritime Qualifications and the STCW$_{95}$ Convention Code A-V1/1-1.)*. This training is usually outsourced to internationally accredited safety training institutions, which include;

- Cape Peninsula University of Technology Survival Centre; Cape Town
- Irvin & Johnson Survival Training Centre; Cape Town
- Project Maritime Survival Training; Saldanha Bay

It is also compulsory for all Observers to pass a valid SAMSA approved seafarer's medical certificate (STCW95 compliant). These are renewed annually and have to be valid at the time of boarding for the expected duration of the trip.

It is recommended that observers operating on the high seas also complete a first aid course to "level one" that includes a competency certificate in CPR. Practical First Aid course and CPR training, (STCW 95 compliant).

Optional training components that enhances the professionalism of the observer includes

- Fire Fighting; -This course is intended to give all candidates basic knowledge of fire safety, fire prevention and an understanding of the hazards of fire. Candidates will

understand the need for prompt, safe and correct action to be taken on the outbreak of a fire including the use of basic breathing apparatus and the use of extinguishers on live fires.

- GMDSS; - Training in Global Maritime Distress and Safety System (GMDSS), provides the communication support needed to implement the search and rescue in emergency situations and will assist the observer in the operational aspects of the advanced satellite communication systems that are now compulsory on all vessels operating on the high seas. This training assists in the sending and receiving communications while onboard and can overcome communication issues when language differences exist.

Trip briefing and Debriefing

Trip briefing and Debriefing is considered an essential component of on-going training. Attention given to pre briefing observers prior to sailing, covering data requirements and sampling stratagies to be followed

A comprehensive de-briefing process is followed at the end of each trip to verify data and identify any short-comings in the observers knowledge of the work.

List of current active Observers			
No.	Surname	Name	Experience in sea-days
1	Fortuin	Peter Daniel	1759
2	Pool	Elcimo John	1667
3	Baily	Rudian Alphonse	1647.5
4	Robyn	Phillip	1611
5	Visagie	Johannes	1589
6	Ngcongo	Victor Sihle	1454.5
7	Vilakazi	Basil	1440
8	Dladlama	Sikho Sydney	1296.5
9	Hendricks	Schalk	768.5
10	Hendricks	Jonathan	668
11	Kapp	Marius	612.5
12	Silekwa	Mzwandile	599
13	Lewis	Llewellyn Sylvester	433
14	Potgieter	AndriesDawid	273
15	Dreyer	Dwight Reece	162.5
16	Markus	Jermaine	154
17	Nel	Lock Eckhard	63
18	Lumkwana	Siyabulelea	18
Total			**19038**

B Scientific Observer program Design and coverage.

The current SWIOFP Observer Manual and data base are being used by South Africa as a basis for training and data collection

Observer deployed on South African flagged vessel required a 20% coverage of effort. This program was discontinued in March 2011. A new contract is still in the process of being formalised to reinstate this programme

All foreign flagged vessels operating on South African licences have 100% observer coverage.

Table 2 Summary of Observer experience in the Pelagic Longline sector 2005 to 2012

Vessel	Number of Trips	Number of Sea-days	Number of Lines Monitored
Foreign Flagged	119	9861	6426
South African Flagged	186	3214	2044
Total	**305**	**13075**	**8470**

C. Observer Data collected

In 2012 a total of 923 lines and 2,465,068 hooks were monitored. This includes effort in the South African EEZ targeting Yellow fin and Big eye tuna and effort on the high seas for Southern Bluefin tuna south of the South African EEZ (Figure 1).

Catch data 2012

Table 3 Southern Bluefin tuna catch data from the foreign vessels in the period June to July 2012.

Species	Fate Code	No Caught	Number Measured
SBT	A0	131	0
SBT	A1	21	0
SBT	A2	38	0
SBT	DC0	13	0
SBT	DC2	2	0
SBT	DC5	95	0
SBT	Retained	431	411

Fate Codes

- A0 =Released, conditions not determined.
- A1= Released in good health condition.

- A2= Released, minor injuries.
- DC0= Discarded, reason unknown.
- DC2= Discarded, depredated.
- DC5= Discarded dead.

Observer Sampling Requirements

The observers were required to collect length data on all tuna and bycatch species caught for at least 80 % of the line. Additional data collected when possible includes sex and product.

A total of 95% of the Southern Bluefin tuna retained were samples for length.

D. Tag Return Monitoring

A high percentage of all fish landed are monitored and to-date the observers have recovered and submitted 11 tags returns from Southern Bluefin tuna in this fishery